

DECISION DOCUMENT FOR THE ADDITION OF WATERBODY/POLLUTANT COMBINATIONS TO THE ARKANSAS' 2002 §303(d) LIST

On March 10, 2003, the EPA partially approved and partially disapproved Arkansas' list submission and proposed to add additional waterbody/pollutant combinations that met the listing requirements to the final Arkansas 2002 list as described in EPA's *Decision Document for the Approval of Arkansas' 2002 §303(d) List*, incorporated herein by reference and available at www.epa.gov/earth1r6/6wq/artmdl.htm. The EPA received numerous public comments, including comments from the Arkansas Department of Environmental Quality (ADEQ), the Arkansas Attorney General's Office (AG's Office), Arkansas Congressman Boozman's Office, the states of Oklahoma and Missouri, and municipalities. The EPA has responded to the public comments, through a separate document, and today is taking final agency action as described herein on the additions to the Arkansas 2002 §303(d) list.

Basis for Decision to Add Waters to Arkansas' 2002 Section 303(d) List

Based on the EPA's initial review of the final list submission, the EPA identified several waters which appeared to exceed currently applicable water quality standards, and in a letter dated December 17, 2002, requested that the state provide a "good cause" justification for its decision not to list these waters. The State responded in letters dated January 16, March 28, and June 4, 2003. The concerns identified by the EPA at that time, the State's subsequent responses, and the EPA's decisions are discussed below.

Input from the ADEQ and the AG's Office

On June 2, 2003, the EPA Region 6 office met with representatives from the ADEQ and the AG's Office. During this meeting ADEQ and the AG's Office further clarified Arkansas' interpretation of the narrative water quality standard for nutrients. While the EPA did not agree with some of the technical factors used by the state in their assessment of streams with respect to this narrative standard, the EPA deferred to Arkansas' interpretation that "objectionable algal densities or other nuisance aquatic vegetation," and "adversely affect designated uses and or fish and wildlife propagation" required a relatively higher level of impact than that utilized by the EPA for its review of the Arkansas list.

Use Designations for Delta Ecoregion Streams

Concerns with application of Arkansas' water quality standards arose when assessing waters for violation of the turbidity criteria in the Delta ecoregion. The water quality standards list two use designations for waters in the Delta Ecoregion, one for least-altered Delta streams and the other for channel-altered Delta streams. The channel-altered designation carries with it less stringent criteria for temperature and turbidity. The water quality standards do not specifically identify those waters in the Delta considered to be channel-altered leading to questions on the appropriate use and associated criteria to apply in assessing these waters. The

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State maintains that most of the waters in the Delta Ecoregion are channel-altered and therefore have applied these criteria to many of the streams evaluated for the 2002 list. The EPA has determined that in the absence of specific designations it is appropriate to presume the higher use and the more stringent criteria associated with that use for determination of support for streams in the Delta Ecoregion. This interpretation of the State's water quality standards results in twenty-two additional waters being added to the State's 2002 303(d) list. The EPA has decided to place these waters in a separate subcategory 5(b) of the impaired waters list. If the State, through appropriate mechanisms, establishes that these streams should be designated as channel-altered streams, these waters will be reassessed using the appropriate criteria and determinations of their impairment status will be reviewed.

STREAM NAME	HUC	REACH	POLLUTANT	PRIORITY
Wabbaseka Bayou	8020401	003	siltation	L
Bayou DeView	8020302	004	siltation	L
Bayou DeView	8020302	005	siltation	L
Bayou DeView	8020302	006	siltation	L
Bayou DeView	8020302	007	siltation	L
Cache River	8020302	016	siltation	L
Cache River	8020302	017	siltation	L
Cache River	8020302	018	siltation	L
Cache River	8020302	019	siltation	L
Cache River	8020302	020	siltation	L
Cache River	8020302	027	siltation	L
Cache River	8020302	028	siltation	L
Cache River	8020302	029	siltation	L
Cache River	8020302	031	siltation	L
Cache River	8020302	032	siltation	L
Village Creek	11010013	006	siltation	L
Village Creek	11010013	007	siltation	L
Village Creek	11010013	008	siltation	L
Village Creek	11010013	012	siltation	L
Blackfish Bayou	8020203	003	siltation	L
Blackfish Bayou	8020203	005	siltation	L
Blackfish Bayou	8020203	007	siltation	L

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Data are sufficient to support a conclusion that fishable/swimmable goals are violated due to fish advisories for mercury.

As discussed in the EPA document, *"Guidance: Use of Fish and Shellfish Advisories and Classifications in 303(d) and 305(b) listing Decisions"* issued October 24, 2000, section 101(a)(2) of the CWA establishes as a national goal "water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and recreation in and on the water, wherever attainable. "These are commonly referred to as the "fishable/swimmable" goals of the Act. The EPA interprets "fishable" uses under section 101(a) of the CWA to include designated uses providing for the protection of aquatic communities and human health related to consumption of fish and shellfish. In other words, the EPA views "fishable" to mean that not only can fish and shellfish thrive in a waterbody, but when caught, can also be safely eaten by humans. The EPA guidance provides that:

For purposes of determining whether a waterbody is impaired and should be included on a section 303(d) list, EPA considers a fish or shellfish consumption advisory, a NSSP [National Shellfish Sanitation Program] classification, and the supporting data, to be existing and readily available data and information that demonstrates non-attainment of a section 101(a) "fishable" use when:

1. the advisory is based on fish and shellfish tissue data,
2. a lower than "Approved" NSSP classification is based on water column and shellfish tissue data (and this is not a precautionary "Prohibited" classification or the state water quality standard does not identify lower than "Approved" as attainment of the standard),
3. the data are collected from the specific waterbody in question and
4. the risk assessment parameters (e.g., toxicity, risk level, exposure duration and consumption rate) of the advisory or classification are cumulatively equal to or less protective than those in the State, Territory, or authorized Tribal water quality standards.

This applies to all pollutants that constitute potential risks to human health, regardless of the source of the pollutant.

In its "good cause" response, Arkansas cited its assessment methodology that establishes that waters with fish advisories would be listed as "nonsupport" for fish consumption if a primary segment of the fish community (e.g., all predators or all Largemouth bass) is recommended for nonconsumption by any user group (e.g., general population or high risk groups). However, if a consumption restriction is recommended, e.g., no more than two meals per month or no consumption of fish over 15-inches, these waters will not be listed as "nonsupport". Arkansas

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responded that most of the waters listed in the EPA's table (below) do not meet the State's assessment criteria above for listing as impaired since they do not have a prohibition against eating any species of fish as a result of mercury contamination. EPA disagrees that this is a reasonable basis for concluding these waters are not impaired.

EPA identified the following waters as impaired for mercury based on fish tissue advisories for mercury in fish tissue, through application of EPA's guidance described above and conclude they be listed.

STREAM NAME	HUC	POLLUTANT	PRIORITY
Cove Creek	11110202	mercury/fish tissue	H
Monticello	8040204	mercury/fish tissue	H
Nimrod	11110206	mercury/fish tissue	H
Ouachita River Oxbows below Camden	8040202	mercury/fish tissue	H
Sylvia	8040203	mercury/fish tissue	H
Winona	8040203	mercury/fish tissue	H

Nutrient Listings

_____ When evaluating the nutrient 303(d) listings, the EPA looked at numerous types of data and information and utilized a weight of evidence approach with a determinative emphasis on total phosphorus concentrations, consistent with the greater emphasis in the narrative Arkansas nutrient water quality standard on phosphorus concentrations and the association of phosphorus concentration with nutrient impairments. In addition to the phosphorus concentration, and among other existing and readily available data and information, the EPA considered the following factors: (1) DO daily fluctuations; (2) the absence or presence of periphyton; (3) the absence or presence of filamentous algae; (4) the benthic community structure, and (5) the fish community structure.

Data and information are sufficient to support a conclusion that the narrative water quality standard for nutrients is exceeded.

The Arkansas narrative standard for nutrients, Section 2.509 of Regulation 2, is as follows:

"Materials stimulating algal growth shall not be present in concentrations sufficient to cause objectionable algal densities or other nuisance aquatic vegetation. As a guideline, total phosphorus shall not exceed 100 ug/l in streams or 50 ug/l in lakes and reservoirs except in waters highly laden with natural silts or color which

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reduce the penetration of sunlight needed for plant photosynthesis, or in other waters where it can be demonstrated that algal production will not interfere with or adversely affect designated uses and/or fish and wildlife propagation."

In a letter dated June 4, 2003, the ADEQ submitted additional data on dissolved oxygen (D.O.), pH, and turbidity for the reaches in question citing that no violations for these parameters occurred in these reaches during the period of record. ADEQ explains in its letter, "the methodology states that narrative criteria for nutrients must also result in diurnal D.O. fluctuations which violate the D.O. standard or result in violations of pH, dissolved metals or other numeric standards, or result in a significant alteration of the aquatic life community structure". This interpretation of the narrative for nutrients was given in the assessment methodology as being applicable to lakes and reservoirs. There is no discussion of an interpretation of the narrative for nutrients in streams. While the EPA has no dispute with the interpretative application for nutrients in lakes and reservoirs, the EPA does not believe that this assessment methodology is appropriate for flowing streams, especially streams of the type found in the Ozark Highlands. The EPA believes that review of the D.O. and pH profiles in these streams demonstrate swings and upward shifts in these factors, along with elevated average total phosphorus concentrations at various locations, are indicative of adverse impacts resulting from nutrient enrichment and support listing.

Osage Creek in the Kings River Basin

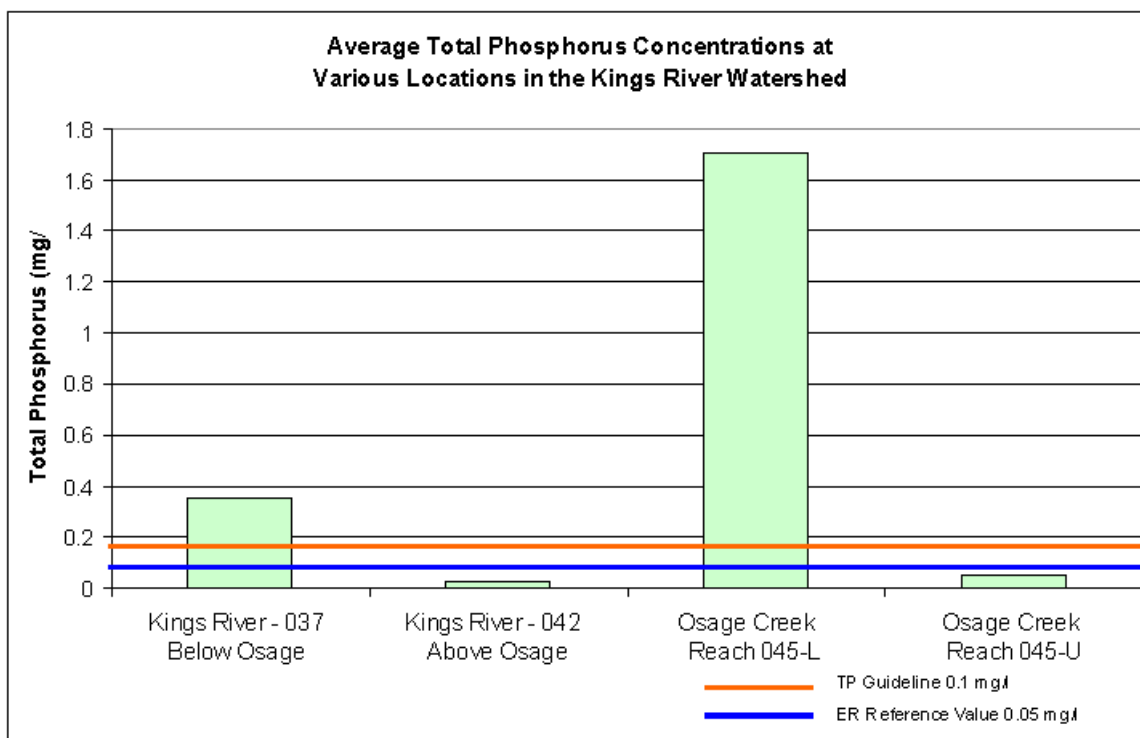
The State of Missouri commented on the issue of nutrient listings for transboundary waters during the State's public review period. The EPA has reviewed these comments offering concerns with nutrient loads, specifically phosphorus loadings to specific streams and Arkansas' responses to these comments. The State of Missouri has established a TMDL for total phosphorus to address water quality concerns in Table Rock Lake, Missouri. Based on the EPA's review of these comments and phosphorus measurements in streams in Arkansas that flow into Table Rock Lake, the EPA has decided to list the portion of Osage Creek below the Town of Berryville (reach 045-L). Average total phosphorus (TP) concentrations in this reach are approximately 16 times greater than the Arkansas guideline value and are much greater than those in other streams in the region such as the upper reach of Osage Creek (045-U) and the Kings River.

In a recent Arkansas Democrat Gazette article, June 5, 2003, a float-fishing guide described his recent experience after a flushing flow from Osage Creek resulting from rainfall in the watershed: "Floating the river downstream from the Osage confluence, Fletcher and his clients were plagued by an abundance of green moss being flushed out of the [Osage] creek". Fletcher reported, "We couldn't hardly fish because of the moss collecting on our lures with every cast". While this is not scientific evidence in support of the EPA's decision today it does describe conditions consistent with EPA's evaluation of Osage Creek as a highly nutrient enriched system.

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Therefore, the EPA is today listing the portion of Osage Creek below the Town of Berryville, subsegment 045-L.

Figure 1. Average total phosphorous concentrations at various locations in the Kings River watershed.

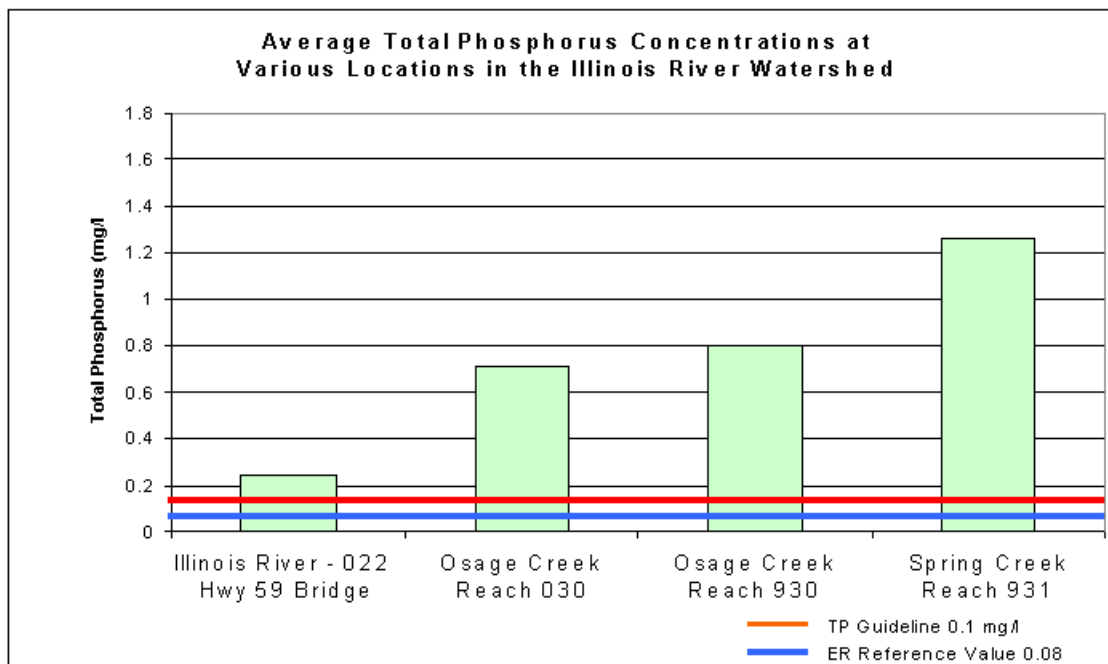


Osage Creek and Spring Creek in the Illinois River basin

For similar reasons EPA is today adding Osage Creek reaches 030 and 930 and Spring Creek reach 931 to the Arkansas 2002 303(d) list. The EPA has determined that total phosphorus concentrations in these segments of the Illinois River watershed and associated biological and chemical impacts are sufficient to support a listing. Total phosphorus concentrations in Osage Creek are seven to eight times greater than the Arkansas total phosphorus guideline for streams and those in Spring Creek are almost thirteen times higher (see Figure 2).

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Figure 2. Average total phosphorus concentrations at various locations in the Illinois River Watershed.



Algae in enriched streams produce oxygen during the daylight hours driving up the oxygen content of the water and then depletes the water of oxygen during the night as they respire. When populations of algae are excessive, daily fluctuations between the minimum and maximum DO concentrations are much greater. Dissolved oxygen profiles from water quality stations below significant sources of total phosphorus show shifts in the DO profile. In Osage Creek, the maximum daily change in DO increased from 2.4 mg/l at the upstream station to 3.7 mg/l downstream of a WWTP. Similar shifts were observed in the data collected from other streams. Daily fluctuations in DO of 3 mg/l or greater have been shown to cause stress in game fish (USEPA, April 1986).

Percent saturation of DO is another measure of the amount of oxygen in water. Super saturated water occurs as a result of daytime photosynthetic activity of excessive algae present in the water. Percent saturation values for waters in the Ozark Highlands may approach 100% under normal conditions. DO saturation of over 125% was documented in the ADEQ 1997 report. This is an additional indicator of nutrient enriched waters.

As supported by ADEQ's 1997 report, the biological community data is also supportive of a finding of adverse impacts resulting from nutrient enrichment in Osage Creek and Spring Creek.

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The report states that “Periphyton, was prevalent on the rocks at most sites.” Periphyton coverage on the bottom substrate ranged from 40 to 100% with filamentous alga present at some locations. Macroinvertebrate data was either slightly impaired or borderline between not significantly impaired to slightly impaired. Stations for Spring Creek and Osage Creek were generally indicative of nutrient enrichment. The report states that several stations, including Spring Creek and Osage Creek “may be exhibiting the artificial enhancement of excess nutrient input.” The report continues to state that, “It is possible that any additional nutrient enrichment could cause a significant reduction in the quality of the macroinvertebrate community and associated aquatic life in the stream system.”

Fish communities were “substantially” shifted towards primary feeders evidenced by atypical populations of stonerollers, carp, minnows, and yellow bullheads and a reduction in sensitive fish such as darters. The dominance of stonerollers are indicative of nutrient enrichment of the stream because they feed on periphyton and algae. In summary, "impacts on the aquatic life uses included some areas of periphyton (algae) production increases; borderline; slightly impaired macroinvertebrate communities; and fish communities with substantial increases in primary feeders and reduction in sensitive species."

Based on the information cited above, the EPA believes that demonstration that elevated nutrient levels in Osage Creek (030,930) and Spring Creek (931) are sufficient to demonstrate taking final action to add these stream segments of Osage Creek and Spring Creek. Further monitoring will be conducted in the Illinois River basin to evaluate changes in the biological community since 1995 and re-assess the impact of total phosphorus on aquatic life.

The EPA also reviewed information contained in *Water Quality Assessment of Arkansas' Significant Publicly-owned Lakes (1989, 1995, and 1999)* and 305(b) reports (1996, 2002). Applying the State's narrative nutrient criteria as described in its assessment methodology for lakes and reservoirs, EPA considered violations in the associated numeric standards for DO and pH. Chlorophyll *a* and total phosphorus data were also considered. Waters included in this group show elevated chlorophyll *a*, dissolved oxygen, pH, and total phosphorus values, which are strong indicators of nutrient impairment in lakes and reservoirs.

After a careful review of this information the EPA has concluded that the following waters should be added to the State's 2002 303(d) list for exceedances of the state narrative for nutrients.

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STREAM NAME	HUC	REACH	PARAMETER	PRIORITY
Osage Creek	11010001	045-L	Total Phosphorus	H
Osage Creek	11110103	930	Total Phosphorus	H
Osage Creek	11110103	030	Total Phosphorus	H
Spring Creek	11110103	931	Total Phosphorus	H
Bear Creek Lake	8020205	lake	nutrients	M
First Old River Lake	11140106	lake	nutrients	M
Grand Lake	8050002	lake	nutrients	M
Horseshoe Lake	8020203	lake	nutrients	M
Mallard Lake	8020204	lake	nutrients	M
Old Town Lake	8020303	lake	nutrients	M

Previously proposed waters not being listed in today's action

Kings River subsegment 037

Total phosphorus values are not remarkably greater than the narrative guideline in Kings River segment 037. As can be seen in Figure 1, the average TP concentration in the headwaters of the Kings River (reach 042) above the confluence with Osage Creek is significantly lower than the Arkansas narrative guideline. This fact indicates that elevated TP concentrations in the lower Kings River are likely the result of high concentrations in Osage Creek and are significantly lower than the narrative guideline. There is no supporting data or information to indicate that concentrations in segment 037 are elevated by any source other than the elevated values documented in Osage Creek. There is no additional information relative to nutrient enrichment available for this segment. For these reasons, EPA has determined that a listing for subsegment 037 of Kings River is not warranted at this time. Further monitoring will be conducted in the Kings River basin in order to evaluate the biological community and re-assess the impact of total phosphorus on aquatic life.

Illinois River subsegment 022

Total phosphorus concentrations in the Illinois River also are less than those in Osage and Spring Creek, being only about two times greater than the Arkansas total phosphorus nutrient water quality standard guidelines. Although several additional factors were marginally elevated, a review of additional biological and physical parameters for this reach indicate an non-impaired system: there was no attached filamentous algae observed, and the taxa richness of fish species and the number of sensitive fish species were the highest of all sites included in ADEQ's 1997

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survey. Based on a weight of evidence approach and because phosphorus concentrations are considered a determining factor, the EPA has decided in today's action not to include the Illinois River (reach 022) as part of our current action because the data indicate that the impacts are not as great as in upstream reaches of the Illinois River basin. Further monitoring will be conducted in the Illinois River basin to evaluate the biological community and re-assess the impact of total phosphorus on aquatic life.

Water Column Data That Are Sufficient to Show That Numeric Water Quality Standards Are Not Being Met.

The State has not demonstrated, to the EPA's satisfaction, good cause for not including waters listed in the table below in its 2002 Section 303(d) list. As provided in 40 CFR 130.7(b)(6)(iv), the EPA requested that the State demonstrate good cause for not including these waters. Arkansas' response to the EPA's request for good cause was in general that the EPA had used the wrong criteria for most of the waters or interpreted the criteria incorrectly from that described in the State's assessment methodology. After working cooperatively with Arkansas to clarify any misuse of criteria or misapplication of the assessment methodology, the EPA was able to resolve many concerns; however, there are still some waters for which the EPA has concerns. Some waters were not listed despite available water column data that are sufficient to show that numeric water quality standards are not being met. Waters included in this group meet the minimum data requirements as established by the ADEQ and the assessment shows that the percent exceedance is greater than that allowed in the ADEQ assessment methodology. The EPA technical staff determined that the percent exceedances, for these parameters, used in the ADEQ assessment methodology is a reasonable approach and is consistent with Arkansas's water quality standards. In some cases the minimum sample size has not been met but, the number of exceedances allowed for a finding of non-support have been reached. Additional data collection to achieve the minimum sample size will not affect the determination of non-support for these waters. The EPA believes that it is appropriate to list waters under this scenario. Based on these determinations the EPA has concluded that the following waters be listed.

STREAM NAME	HUC	REACH	PARAMETER	PRIORITY
Overflow Creek	11010014	006	pathogens	M
Overflow Creek	11010014	004	pathogens	M
Curia Creek	11010009	901	pathogens	M
Village Creek	11010013	012	pathogens	M
Cache River	8020302	018	pathogens	M
Cache River	8020302	017	pathogens	M
Cache River	8020302	028	pathogens	M

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STREAM NAME	HUC	REACH	PARAMETER	PRIORITY
Lake Wilhelmina	11140108	lake	bacteria	M
Lake Calion	8040201	lake	chlorides	M
Lake June	11140203	lake	chlorides	M
Lake Frierson	8020302	lake	turbidity	M

Waters included on the Arkansas 1998 303(d) list but not carried forward to the Arkansas 2002 303(d) list

The EPA compared the listings in the 1998 303(d) list with those in the 2002 303(d) list and found that nine waterbody pollutant pairs were on the 1998 303(d) list but not carried forward to the 2002 303(d) list. As provided in 40 CFR 130.7(b)(6)(iv), the EPA requested that the State demonstrate good cause for not including these waters on the Arkansas 2002 303(d) list. Arkansas responded in an email dated January 31, 2003, justifying waterbody by waterbody the omission of these waterbody pollutant pairs. Upon review of this information, the EPA concludes that the State's decision to omit these waters and pollutants from the 2002 303(d) list is consistent with federal listing requirements except for the Poteau River. Based on this determination the EPA has concluded that the following water be listed.

STREAM NAME	HUC	REACH	POLLUTANT	PRIORITY
Poteau River	11110105	031	nutrients	H

Nonpoint Source Impaired Waters

The State properly listed waters with nonpoint sources causing or expected to cause impairment, consistent with Section 303(d) and the EPA guidance. Section 303(d) lists are to include all WQLSs still needing TMDLs, regardless of whether the source of the impairment is a point and/or nonpoint source. The EPA's long-standing interpretation is that Section 303(d) applies to waters impacted by point and/or nonpoint sources. In *Pronsolino v. Marcus*, the District Court for the Northern District of California held that section 303(d) of the Clean Water Act (CWA) authorizes the EPA to identify and establish total maximum daily loads (TMDLs) for waters impaired by nonpoint sources. *Pronsolino et al. v. Marcus et al.*, 91 F.Supp.2d 1337, 1347 (N.D.Ca. 2000). See also EPA's 1991 Guidance and National Clarifying Guidance for 1998 Section 303(d) Lists, Aug. 27, 1997.

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Priority Ranking and Targeting

The EPA also reviewed the State's priority ranking of listed waters for TMDL development, and concludes that the State properly took into account the severity of pollution and the uses to be made of such waters. The State's priority ranking falls into three categories. Those waters with the highest risk of affecting public health or welfare, substantial impact on aquatic life uses, and existing data available for TMDL are given a high priority rank (H). A medium priority rank (M) is assigned to waters with a moderate risk to public health or welfare or to aquatic life uses. A low priority rank (L) is assigned to those waters with the lowest risk to public health or welfare and secondary impact on aquatic life uses.

In addition, the EPA reviewed the State's identification of WQLSs targeted for TMDL development in the next two years, and concludes that the targeted waters are appropriate for TMDL development in this time frame. The State is well underway with several of the TMDLs targeted for waters including 3 TMDLs for Flat Creek, 2 TMDLs for Salt Creek, 2 TMDLs for Stone Dam Creek, and 1 TMDL for Whig Creek. Additionally, the State should be able to complete the monitoring and analysis work required for TMDLs for six reaches of the Strawberry River within the next two years. The State has targeted a mix of TMDLs for near-term TMDL development, including waters affected by point and nonpoint sources and a mix of simple and more complex TMDLs. The EPA concludes, based on these considerations, that the State's priority ranking and targeting commitments are consistent with federal requirements.

Administrative Record Supporting This Action

In support of this decision to approve the State's listing decisions, the EPA carefully reviewed the materials submitted by the State with its 303(d) listing decision. The administrative record supporting the EPA's decision is comprised of the materials submitted by the State, copies of Section 303(d), associated federal regulations, and the EPA guidance concerning preparation of Section 303(d) lists, and this decision letter and supporting report. The EPA determined that the materials provided by the State with its submittal provided sufficient documentation to support our analysis and findings that the State listing decisions meet the requirements of the Clean Water Act and associated federal regulations. We are aware that the State compiled and considered additional materials (e.g., raw data and water quality analysis reports) as part of its list development process that were not included in the materials submitted to the EPA. The EPA did not consider these additional materials as part of its review of the listing submission. It was unnecessary for the EPA to consider all of the materials considered by the State in order to determine that, based on the materials submitted to the EPA by the State, the State complied with the applicable federal listing requirements. Moreover, federal regulations do not require the State to submit all data and information considered as part of the listing submission.

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References

The following list of documents was used directly or indirectly as a basis for the EPA's review of the State's 303(d) water body list. This list is not meant to be an exhaustive list of all records reviewed, but to provide the primary documents the Region relied upon in making its decision to approve the State's list.

Letters and E-Mail

EPA letter to Arkansas approving 1998 list, with enclosure, July 30, 1998

Arkansas' 2002 List Submittal with attachments, September 5, 2002

Letter from EPA to ADEQ, December 17, 2002

Letter from ADEQ to EPA, January 16, 2003

Letter from ADEQ to EPA, March 28, 2003

Letter from ADEQ to EPA, June 4, 2003

Letter dated May 12, 2003 from Daniel V. Obrecht transmitting data from the lakes of Missouri Volunteer Program (1997 - 2002), selected field data sheets from Missouri Volunteer program, Quarterly Reports for 2002 sent to Missouri Department of Natural Resources, Table Rock Long-Term Monitoring and Table Rock Hydrology (2000 and 2001)

E-mail correspondence between the EPA and Arkansas

Email correspondence with Sharon Clifford of the Missouri Department of Natural Resources

Email correspondence with Daniel V. Obrecht, Department of Fisheries and Wildlife Sciences, School of Natural Resources, University of Missouri-Columbia

Email correspondence with Reed Green and John Terry of the USGS (Little Rock, AR office)

Email correspondence with Derek Smithee of the Oklahoma Water Resources Board

Email correspondence with Marty Matlock, University of Arkansas including transmitted publications

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Regulations

40 CFR Part 130 Water Quality Planning and Management

Arkansas Water Quality Standards, Arkansas Pollution Control and Ecology Commission, Regulation 2, April 1998.

December 28, 1978 Federal Register Notice, Total Maximum Daily Loads Under Clean Water Act, finalizing EPA's identification of pollutants suitable for TMDL calculations, 43 Fed. Reg. 60662

January 11, 1985 Federal Register Notice, 40 CFR Parts 35 and 130, Water Quality Planning and Management: Final Rule, 50 Fed. Reg. 1774

July 24, 1992 Federal Register Notice, *40 CFR Parts 122, 123, 130*, revision of regulation, 57 Fed. Reg. 33040

Guidance

Guidance from Office of Water, Headquarters, US EPA regarding Consolidated Assessment and Listing Methodology (July 20002)

Memorandum from Robert H. Wayland III, regarding Clarification of the Use of Biological Data and Information in the 2002 Integrated Water Quality Monitoring and Assessment Report Guidance (March 26, 2002)

Memorandum from Robert H. Wayland III, EPA Office of Water regarding 2002 Integrated Water Quality Monitoring and Assessment Report Guidance (November 19, 2001)

Memorandum from Robert H. Wayland, III, Director, Office of Wetlands, Oceans and Watersheds, to Water division Directors, Region I-Xre: Implementation of Section 303(d) Until the New TMDL Rule Becomes Effective (Dec. 7, 2000)

Guidance: Use of Fish and Shellfish Advisories and Classifications in 303(d) and 305(b) listing Decisions - Geoffrey H. Grubbs and Robert H. Wayland, III (October 24, 2000).

EPA Review of 2000 Section 303(d) Lists - Robert H. Wayland, III (April 28, 2000)

Fact Sheet - EPA Revises Water Quality Listing Requirements for April 2000

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Guidance from Office of Water, Headquarters, US EPA regarding Guidelines for Preparation of the Comprehensive State Water Quality Assessments (305(b) Reports) and Electronic Updates: Supplement, EPA-841-B-97-002B (September 1997)

Memorandum from Robert H. Wayland III, Director, Office Wetlands, Oceans, and Watershed, Office of Water, EPA Headquarters, to Water Division Directors, Regions I - X, and Directors, Great Water Body Programs, and Water Quality Branch chiefs, Regions I - X, regarding National Clarifying Guidance For 1998 State and Territory Section 303(d) Listing Decisions (August 17, 1997)

Memorandum from Robert Perciasepe, Assistant Administrator to Regional Administrators & Regional Water Division Directors regarding new Policies for Establishing and Implementing Total maximum Daily Loads (August 8, 1997)

Memorandum from Geoffrey H. Grubbs, Director, Assessment and Watershed protection Division to FACA Workgroup on Section 303(d) listing Criteria regarding nonpoint Sources and Section 303(d) Listing Requirements (May 23, 1997)

Memorandum from Robert Perciasepe, Assistant Administrator regarding EPA Action on 1996 lists, priority Rankings and TMDL Targeting Plans Submitted by States Under Section 303(d) of the CWA (August 9, 1996)

Memorandum from Robert perciasepe, Assistant Administrator regarding Total Maximum Daily Loads: A Key to Improving Water Quality (February 26, 1996)

Memorandum from Geoffrey Grubbs, Director, Assessment and Watershed Protection Division, Office of Water, EPA Headquarters, to Water Quality Branch Chiefs, Regions I - X, and TMDL Coordinators, Regions I - X, regarding Guidance for 1994 Section 303(d) Lists (November 26, 1993)

Memorandum from Geoffrey Grubbs, Director, Assessment and Watershed Protection Division, Office of Water, EPA Headquarters, to Water Quality Branch Chiefs, Regions I - X, regarding Approval of 303(d) Lists, Promulgation Schedules/Procedures, Public Participation (October 30, 1992)

Memorandum from Geoffrey Grubbs, Director, Assessment and Watershed Protection Division, Office of Water, EPA Headquarters, to EPA Water Quality Branch Chiefs, Regions I - X and TMDL Coordinators, Regions I - X, regarding Supplemental Guidance on Section 303(d) Implementation (August 13, 1992)

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Regulations: Part 130 of Title 40 of the Code of Federal Regulations, section 130.7, contains the regulations currently governing the Total Maximum Daily Load program, which was issued July 24, 1992

Guidance for Water Quality-Based Decisions: The TMDL Process, EPA 440/4-91-001 (April 1991)

Data Sources

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